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EXAMINER

DIETRICH, M

ART UNIT	PAPER NUMBER
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2814

10.

DATE MAILED: 10/20/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

08/813,200

Applicant(s)

Hirano

Examiner

Mike Dietrich

Group Art Unit

2814



☒ Responsive to communication(s) filed on Sep 13, 1999

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-19 and 27-29 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-9, 12-15, 17, 19, and 27-29 is/are rejected.

☒ Claim(s) 10, 11, 16, and 18 is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Drawings

1. The drawings are objected to because they include the following reference sign(s) 12 which is mentioned in the description as “vacuum exhaust line 121 (see page 8 line 24).

Correction is required.

Claim Objections

2. Claims are objected to because of the following informalities:

In view of claim 15, it is unclear whether there is 3 or 4 exhaust lines, since a chamber exhaust, first vacuum line, second vacuum line and a local exhaust are recited. The first vacuum exhaust line connected to a vacuum pump and second vacuum exhaust line is communicated with the chamber and first exhaust line and, the local exhaust communicates with the first exhaust line too. The chamber exhaust is used to exhaust the load lock chamber and not shown to be connect to any structure. In view of claims 5, 7, 15-17, 27, the metes and bounds of “communicated” is unclear and indefinite as to how the exhaust lines communicate with one another.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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4. Claims 27-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In view of claim 27, it is unclear how the space covered with the cover communicates with the inside of the load lock chamber, and how the local exhaust communicates with the space covered with the cover and the gas supply and chamber exhaust do not communicate with the space covered with the cover.

Claim 28 recites a “chamber exhaust,” “local exhaust,” and “a pressure of said exhaust line,” however, there is no exhaust line recited in claim 28, therefore it is unclear what the load lock chamber pressure is greater than.

Claim 29 recites “inside pressure of the load lock chamber is kept greater than the atmospheric pressure.” However, in the specification on page 14 lines 3-10, it shows that the load lock chamber is evacuated by the vacuum exhaust. Thereafter, N₂ is supplied until the load lock chamber has a pressure that becomes equal to or greater than the atmospheric pressure. Applicant’s specification indicates that at one time the pressure inside the load lock chamber is drops below the atmospheric pressure by the vacuum exhaust, the pressure is then raised until it is equal or greater then the atmospheric pressure. The specification does not support claim 29 for keeping the pressure higher than the atmospheric pressure, because the specification says otherwise.

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Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-9, 12, 14, 15, 17 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Saeki.

Saeki shows chamber 7 that contains gas supply line 10 and chamber exhaust 9 and a load lock chamber 1 containing gas supply line 3, local line 2 and moving mechanism 6. Local exhaust 2 is capable of removing contaminating particles from the load lock chamber and is connected to vacuum pump 23. It is inherent that a flow regulator is used on the gas supplying lines and exhaust lines, so that the flow of gas into the chamber or the exhausting of the chamber can be controlled.

It is inherent that the controlling apparatus that is not shown of Saeki would have used detecting devices and regulators to control the different pressure settings for chamber 7 and load lock chamber 1.

A controller (not shown) controls the movement of the substrate by the moving mechanism, the dust created by the moving mechanisms is exhausted by the local exhaust, while the controller (not shown) controls the flow regulator. Controlling the flow regulator includes closing the regulator so that no dust is exhausted as does chamber exhaust line 9. The claim language does not require the dust to be exhausted while the substrate is being moved by the

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moving mechanism. Examiner suggests the following claim language “a controller, wherein exhausting of the dust generating portion of said moving mechanism by said local exhaust occurs during movement of said substrate by said moving mechanism and said controller controls said flow rate regulator.” The suggested claim language would not put the application in condition for allowance, it would however overcome the rejection 35 U.S.C. 102(b) as being anticipated by Saeki.

In re claims 2-4, 6 and 7, the gas lines 3/10 and exhaust lines 2/9 are regulated by a controlling apparatus that is not shown (see col 5 lines 50-51). It is inherent that the controlling apparatus that is not shown of Saeki would have used detecting devices, signals from the detecting devices and regulators to control the different pressure settings for chamber 7 and load lock chamber 1.

In re claim 5, the load lock chamber 1 and chamber 7 have means to set the pressure to a normal pressure (col 6 lines 66-67), which is equal to the atmospheric pressure. When the load lock chamber 1 is opened to receive another wafer, the pressure between load lock chamber 1 and platform 17 that holds the wafers are equal (col 5 lines 55-60).

In re claims 8 and 9, it is inherent that the local exhaust 2 is regulated by the controlling apparatus and is used for creating a pressure in the load lock chamber 1 that is equal to the atmospheric pressure.

In view of claim 12, it is inherent that the controller uses sensors to control the exhaust amount, so that a proper amount of the chamber is exhausted to remove any dust.

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In view of claim 14, the local exhaust comprises a pipe made of a material that is bendable.

In view of claim 15, it is inherent that the valve 22 is closed during the processing of the substrates so that it does not interfere with processing and helps keep the local exhaust clean from debris that would be formed during the processing of the substrate.

In view of claim 17, a gas supply 10 means is located in the chamber 1 and a chamber exhaust 9 is located in the chamber where the moving mechanisms 6 are located.

In view of claim 19, a load lock chamber 7 is coupled with the processing chamber 1

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-9, 12-15, 17, 19 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saeki in view of Iwabuchi et al.

In view of claim 27 as best understood by examiner, Iwabuchi et al show a cover 594 covering the moving mechanism 24A. An opening 82 within the space covered by the cover is connected to an local exhaust. The same space is not connected with the gas supply to the chamber or the chamber exhaust 81. Therefore, it would have been obvious to one of ordinary skill in the art to cover the moving mechanisms of Saeki, since covering the moving mechanisms would help contain any dust particles generated and enables the dust to be exhausted from the

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cover without interfering with the substrates in the processing chamber, as shown by Iwabuchi et al.

In view of claim 13, Saeki shows a local exhaust, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have a plurality of local exhausts, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art.

Allowable Subject Matter

9. Claims 10, 11, 16 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

10. Applicant's arguments filed 09/13/99 have been fully considered but they are not persuasive.

Applicant argues that Saeki fails to show a controller which during movement of substrate ... and exhausting of the dust generating portion of moving mechanism ... controls flow rate regulator provided in one of a gas supply, a chamber exhaust and local exhaust. However, a controller (not shown) controls the movement of the substrate by the moving mechanism, the dust created by the moving mechanisms is exhausted by the local exhaust, while the controller (not shown) controls the flow regulator. Controlling the flow regulator includes closing the regulator so that no dust is exhausted as does chamber exhaust line 9. The claim language does not require

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the dust to be exhausted while the substrate is being moved by the moving mechanism. A flow regulator is inherently used in all the exhaust lines and supply lines, otherwise they could not be controlled or shut off.

Applicant argues that Saeki fails to show a controller comparing the exhaust amount of local exhaust with a predetermined amount to monitor the state of local exhaust. However, Saeki shows setting the load lock to a predetermined vacuum (see col 6 lines 10-11) and increasing the degree on the vacuum in the exhaust to further remove dust (see col 6 lines 21-24), both would require monitoring the current state of pressure and comparing to the desired state of pressure or lack thereof.

Applicant argues that Saeki fails to shows a chamber exhaust, local exhaust, second vacuum exhaust communicating with a vacuum pump via a first vacuum exhaust line, as required by claim 15. However, claim 15 recites "a chamber exhaust for exhausting said load lock chamber," claim 15 does not recite the chamber exhaust connected to the first vacuum line or vacuum pump. Also, in view of claim 15, it is unclear whether there is 3 or 4 exhaust lines, since a chamber exhaust, first vacuum line, second vacuum line and a local exhaust are recited. The first vacuum exhaust line connected to a vacuum pump and second vacuum exhaust line is communicated with the chamber and first exhaust line and, the local exhaust communicates with the first exhaust line too. The chamber exhaust is used to exhaust the load lock chamber and not shown to be connected to any structure. The metes and bounds of "communicated" is unclear and indefinite as to how the exhaust lines communicate with one another.

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Applicants argue that Saeki fails to show the load lock chamber is kept at a pressure greater than a pressure of exhaust line. However, as discussed above it is unclear what the said exhaust line consists, since it is not defined in the claim.

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Mike Dietrich** at (703) 305-0381 and between the hours of 8:00 AM to 4:00PM (Eastern Standard Time) Monday through Friday or by E-mail via **Michael.Dietrich@uspto.gov**. The Art Unit 2814 Fax Center number is (703) 308-7722; -7724. Primary Examiner **Don Monin** can be reached at (703) 308-4895. Any inquiry of a general

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nature or relating to the status of this application should be directed to the **Group 2800**

Receptionist at (703) 308-0956.

Patent Examiner

Michael Dietrich

10/14/99

Michael C. Dietrich

Donald L. Monin, Jr.
Donald L. Monin, Jr.
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